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7 **UNITED STATES DISTRICT COURT FOR THE**
8 **WESTERN DISTRICT OF WASHINGTON**
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10 CENTER FOR BIOLOGICAL DIVERSITY,

11 Plaintiff,

12 v.

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14 UNITED STATES ENVIRONMENTAL
15 PROTECTION AGENCY; GINA
16 MCCARTHY, Administrator; DENNIS
17 MCLERRAN, Region 10 Administrator,
United States Environmental Protection
Agency;

18 Defendants.
19

CASE NO. _____

**COMPLAINT FOR DECLARATORY AND
INJUNCTIVE RELIEF**

(Administrative Procedure Act, 5 U.S.C. § 706,
and Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*)

20
21 **I. INTRODUCTION**

22 1. Shellfish in Washington and Oregon are experiencing a dramatic collapse in
23 production. Beginning in 2005, billions of oyster larvae have perished in the Pacific Northwest
24 hatcheries that raise young oysters in the region's seawater, with some hatcheries losing up to 80
25 percent of their larvae. At the same time, wild oyster reproduction crashed in Willapa Bay,
26 Washington.
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1 2. These wild and hatchery shellfish production declines in Washington and Oregon
2 signal a serious water quality problem – the increasing acidity of marine waters, or “ocean
3 acidification.” Ocean acidification results when the ocean absorbs carbon dioxide emissions from
4 the atmosphere. The carbon dioxide reacts with seawater to alter the ocean’s chemistry, lowering
5 the ocean’s pH and making it more acidic. Ocean acidification also strips seawater of calcium
6 carbonate, an essential building block for marine organisms that build shells.

7 3. The Pacific Northwest’s coastal waters are particularly vulnerable to ocean
8 acidification. Acidified waters are already reaching surface waters along the Washington and
9 Oregon coasts. As a result, marine organisms in the Puget Sound and along the Pacific Coast are
10 exposed to corrosive waters. Scientists have definitively linked the oyster production problems in
11 the hatcheries to ocean acidification.

12 4. The Clean Water Act, as the nation’s strongest law protecting water quality, aims
13 to halt water pollution and protect the beneficial uses of water bodies. Toward those goals,
14 Section 303(d) of the Clean Water Act requires each state to identify any water bodies that fail to
15 meet the state’s water quality standards and list those bodies as “impaired” waters. 33 U.S.C. §
16 1313(d).

17 5. The state then submits its 303(d) list of impaired waters to the Environmental
18 Protection Agency (“EPA”), and EPA must either approve the list if it meets the requirements of
19 the law or disapprove the list. 33 U.S.C. § 1313(d); 40 C.F.R. § 130.7(d)(2). If EPA disapproves
20 the list, Section 303(d) requires that EPA identify any impaired water bodies omitted from a
21 state’s list. 33 U.S.C. § 1313(d)(2). The state, or EPA if necessary, must then establish and
22 implement pollution limits for any listed, impaired water body. *Id.* § 1313(d)(1), (2).

23 6. Oregon and Washington have both adopted state water quality standards that
24 ensure their marine waters will support shellfish spawning, rearing, and production and protect
25 other marine species. However, in 2011, when the states of Oregon and Washington developed
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1 their biennial lists of impaired waters under Section 303(d), neither state listed any marine waters
2 as impaired due to ocean acidification.

3 7. EPA has long-acknowledged that, as a result of absorbing large quantities of
4 human-made carbon dioxide emissions, ocean chemistry is changing, and this is likely to
5 negatively affect marine ecosystems and species including coral reefs, shellfish, and fisheries.
6 EPA also has acknowledged the Clean Water Act and its 303(d) program can and must be used
7 to address the water quality problem of ocean acidification. EPA had substantial evidence before
8 it that the oyster production problems in Oregon and Washington were linked to acidification and
9 the states' ocean waters did not meet water quality standards.

10 8. Nevertheless, in 2012, EPA approved Oregon and Washington's lists of impaired
11 waters. EPA's approval of these deficient lists is arbitrary and capricious and not in accordance
12 with the Clean Water Act, 33 U.S.C. § 1313(d), or the Administrative Procedure Act, 5 U.S.C. §
13 706(2)(a).

14 9. For these reasons, Plaintiff seeks declaratory and injunctive relief requiring EPA
15 to partially disapprove of Oregon and Washington's impaired waters lists and add water bodies
16 impaired by ocean acidification to those lists.

17 **II. JURISDICTION AND VENUE**

18 10. This court has jurisdiction over this action pursuant to the Administrative
19 Procedure Act, 5 U.S.C. §§ 701-706, 28 U.S.C. § 1331 (federal question), 28 U.S.C. § 1356
20 (action against the United States), 28 U.S.C. § 1361 (action to compel an officer of the United
21 States to perform his or her duty), and 28 U.S.C. §§ 2201-02 (power to issue declaratory
22 judgments in cases of actual controversy).

23 11. An actual controversy exists between the parties within the meaning of 28 U.S.C.
24 § 2201.

25 12. Venue is properly vested in this Court pursuant to 28 U.S.C. § 1391(e) because at
26 least one defendant resides in this judicial district, a substantial part of the events giving rise to
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1 the claim occurred, and the violations alleged in this Complaint are affecting ocean waters in this
2 judicial district.

3 **III. PARTIES**

4 13. Plaintiff CENTER FOR BIOLOGICAL DIVERSITY (“the Center”) is a
5 nonprofit corporation dedicated to the preservation of biodiversity, native species, and
6 ecosystems. The Center’s Oceans Program focuses on the protection of marine species and their
7 ocean habitats, including significant efforts to ensure the conservation of imperiled marine
8 species. The Center has worked extensively to protect ocean ecosystems in Oregon, Washington,
9 and nationwide from various threats including ocean acidification. The Center has engaged in
10 efforts to protect endangered marine species threatened by ocean acidification such as black
11 abalone, staghorn coral, elkhorn coral, and 66 coral species currently being considered for
12 Endangered Species Act protection by the National Marine Fisheries Service. Moreover, the
13 Center has taken measures to protect marine species and their habitat in Oregon and Washington,
14 such as northern abalone, salmon, killer whales, Pacific herring, sea otters, seabirds, and other
15 species.

16 14. The Center has more than 40,000 members, over 2,700 of whom live in Oregon
17 and Washington and many of whom visit the Pacific Northwest’s coastal and marine areas,
18 including the waters at issue in this case. Center members regularly use Oregon and
19 Washington’s ocean and coastal areas for research, aesthetic enjoyment, observation, fishing,
20 harvesting shellfish, and other recreational, scientific, and educational activities and intend to
21 continue doing so in the future.

22 15. Center members and staff also regularly research, observe, photograph, enjoy
23 habitat, and seek protection for numerous marine species that are affected by ocean acidification
24 in Oregon and Washington, including abalone, mussels, clams, oysters, and other shellfish.
25 Ocean acidification harms these marine species by stripping seawater of chemicals that are
26 essential for shellbuilding and growth. It impairs the ability of these shellfish to build shells and
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1 can also reduce their reproduction, survival, and growth. Center members and staff also regularly
2 view and use the habitat of other marine animals such as salmon, sea otters, and whales that are
3 affected by the ecosystem changes, including prey availability, caused by ocean acidification.
4 These aesthetic, scientific, conservation, procedural, and informational harms are actual,
5 concrete injuries suffered by the Center and its members.

6 16. Center members and staff derive scientific, recreational, conservation, and
7 aesthetic benefits from the existence of marine animals in the wild and their ocean habitat.
8 Center members also regularly harvest and consume shellfish on the Oregon and Washington
9 coasts. The maintenance of a healthy marine ecosystem and water quality is important to the
10 Center's members' interest. The Center brings this action on behalf of itself and its adversely
11 affected members and staff.

12 17. Plaintiff and plaintiff's members' injuries are directly traceable to EPA's unlawful
13 approval of Oregon and Washington's deficient 303(d) lists. States must identify impaired water
14 bodies – those failing to meet water quality standards – and establish limits on pollutants causing
15 their impairment. 33 U.S.C. § 1313(d). If a state fails to list an impaired water body, EPA, using
16 its oversight authority, must reject the state's list and identify impaired waters on its own. *Id.*
17 Marine waters in Oregon and Washington do not meet state water quality standards, and
18 therefore when the states failed to identify waters impaired by ocean acidification, EPA was
19 required to disapprove the states' lists and identify those waters as impaired. Once a water body
20 is identified as impaired, either the state or EPA must set total maximum daily load of pollutants
21 that will ensure the protection of water quality. *Id.* As a result of Defendant's approval of Oregon
22 and Washington's impaired waters lists without including marine waters violating water quality
23 standards due to ocean acidification, there has been a continued influx of pollutants that are
24 harming marine wildlife and ecosystems. Defendant's approval of Oregon and Washington's
25 deficient 303(d) lists inhibits the protection of water quality and denies important pollution
26 regulations for water bodies and marine species, allowing ocean acidification to continue
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1 unabated and decreasing Plaintiff's members' ability and opportunity to use, research, view, and
2 enjoy affected marine species and habitats. Species abundance and health, and Plaintiff's
3 members' subsequent opportunities to observe tidepools containing calcifying organisms, or
4 collect shellfish along the shoreline, are harmed by Defendant's deficient approval and the
5 subsequent lack of pollution controls.

6 18. Plaintiff is also suffering procedural and informational injuries resulting from
7 EPA's deficient identification of waters impaired by ocean acidification and the consequent
8 failure to establish total maximum daily loads and take other actions as required by the Clean
9 Water Act. EPA regulations make it clear that impaired water listings and total maximum daily
10 loads shall be developed with public participation. 40 C.F.R. § 130.7(d)(2). Due to EPA's
11 violations of law, the Center and its members are deprived of informational and procedural
12 benefits that would aid them in their activities to conserve ocean wildlife and habitat.

13 19. Plaintiff's injuries can be redressed by the declaratory and injunctive relief sought
14 herein. An order compelling EPA to disapprove Oregon and Washington's impaired waters lists
15 and add water bodies not attaining water quality standards due to ocean acidification will be
16 more protective of seawater quality. Listing triggers a duty for these states or the EPA to develop
17 total maximum daily loads necessary to attain applicable water quality standards, which are
18 incorporated into water quality management plans. The addition of ocean waters to Oregon and
19 Washington's impaired lists also is likely to result in increased monitoring and management of
20 those waters as well as benefits from educating the public and policymakers about ocean
21 acidification. Listing would focus funding, research, and management on those areas that are
22 vulnerable to ocean acidification. Therefore, adding ocean waters to the list will likely improve
23 ocean water quality, better protect ocean waters from further ocean acidification, and increase
24 and improve Plaintiff's members' opportunities to use and enjoy marine waters and species of
25 the Pacific Northwest.

20. Defendant UNITED STATES ENVIRONMENTAL PROTECTION AGENCY is the federal agency charged with the implementation of the Clean Water Act. EPA has the authority and ability to remedy the harm inflicted by Defendant's actions.

21. Defendant GINA MCCARTHY is the Administrator of EPA and is sued in her official capacity. As Administrator of EPA she is responsible for the agency's implementation of the Clean Water Act. Administrator MCCARTHY has the authority and ability to remedy the harm inflicted by Defendant's actions.

22. Defendant DENNIS MCLERRAN is the Administrator of Region 10 of the EPA and is sued in his official capacity. EPA's Region 10's jurisdiction covers the Pacific Northwest of the United States including Oregon and Washington and their ocean waters that are harmed by EPA's unlawful actions and inactions. Administrator MCLARREN is responsible for EPA's implementation of the Clean Water Act within Region 10 including ocean waters in Washington and Oregon. The Regional Administrator has the authority and ability to remedy the harm inflicted by Defendant's actions.

IV. LEGAL BACKGROUND

A. Clean Water Act

23. Congress enacted the Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, with the express purpose of "restor[ing] and maintain[ing] the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a) (2009). The goals of the Clean Water Act are to guarantee "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation" and to promptly eliminate water pollution. 33 U.S.C. § 1251(a).

24. Towards those goals, the Clean Water Act requires each state to establish water quality standards for bodies of water within the state's boundaries. 33 U.S.C. § 1313(a)-(c); 40 C.F.R. § 130.3. To do so, a state first designates the use or uses of a particular body of water (e.g., recreation, shellfish production), *see* 40 C.F.R. § 131.10, and then designates water quality

1 criteria necessary to protect that designated use, *id.* § 131.11. These water quality standards
2 include numeric criteria, narrative criteria, water body uses, and antidegradation requirements
3 and should “provide water quality for the protection and propagation of fish, shellfish and
4 wildlife and for recreation.” 40 C.F.R. § 130.3.

5 25. In turn, Section 303(d) of the Clean Water Act requires states to establish a list of
6 impaired water bodies within their boundaries for which existing pollution controls “are not
7 stringent enough” to ensure “any water quality standard applicable” will be met. 33 U.S.C. §
8 1313(d). “Each State shall assemble and evaluate all existing and readily available water quality-
9 related data and information to develop the list.” 40 C.F.R. § 130.7(b)(5).

10 26. The state’s list of impaired waters must include all water bodies that fail to meet
11 “any water quality standard,” including numeric criteria, narrative criteria, water body uses, and
12 antidegradation requirements. 40 C.F.R. § 130.7(b)(1),(3) & (d)(2). The list must also include
13 waters that are threatened, waters currently attaining water quality standards but are not expected
14 to meet applicable water quality standards before the next listing cycle. 40 C.F.R. §
15 130.7(b)(5)(iv); EPA, *Guidance for 2006 Assessment, Listing and Reporting Requirements*
16 *Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act* (2005). Additionally, states
17 must “identify the pollutants causing or expected to cause violations of the applicable water
18 quality standard.” 40 C.F.R. § 130.7(b)(4). If a water body does not meet a water quality
19 standard, but the specific pollutant or source of the problem is not known, the water body must
20 nonetheless be listed as impaired.

21 27. Once a state develops its impaired waters list, the state must submit the list to
22 EPA, and EPA must approve, disapprove, or partially disapprove the impaired waters list. 33
23 U.S.C. § 1313(d)(2). If EPA does not approve a state’s list, then EPA must identify waters that
24 should have been listed as impaired within 30 days. 33 U.S.C. § 1313(d)(2); 40 C.F.R. §
25 130.7(d)(2). EPA must solicit and consider public comment on such listings. 40 C.F.R. §
26 130.7(d)(2).

28. Once a water body is listed as impaired pursuant to Clean Water Act Section 303(d), the state has the authority and duty to control pollutants from all sources that are causing the impairment. Specifically, the state or EPA must establish total maximum daily loads of pollutants that a water body can receive and still attain water quality standards. 33 U.S.C. § 1313(d). States then implement the maximum loads by incorporating them into the state's water quality management plan and controlling pollution from point and nonpoint sources. 33 U.S.C. § 1313(e); 40 C.F.R. §§ 130.6, 130.7(d)(2). The goal of section 303(d) is to ensure that our nation's waters attain water quality standards whatever the source of the pollution. EPA has recognized that airborne pollutants can deposit onto water bodies and can be an important contributor to declining water quality.

B. Administrative Procedure Act

29. The Administrative Procedure Act allows for review of agency actions. "A person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof." 5 U.S.C. § 702.

30. The Administrative Procedure Act requires that a court set aside and hold unlawful agency actions found to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law," and "without observance of procedure required by law." 5 U.S.C. § 706(2).

V. PROCEDURAL BACKGROUND

31. Pursuant to Section 303(d) of the Clean Water Act, Oregon and Washington initiated separate processes to update their lists of impaired waters for 2010. Both states put out a call for data to solicit water quality information from the public.

A. Washington's Listing Process

32. In 2007, Plaintiff submitted a request to Washington's Department of Ecology that it list all state marine waters for pH impairments due to ocean acidification on the 2008 list

1 of impaired waters. Washington denied Plaintiff's request, and in response to EPA's approval of
2 Washington's list, Plaintiff sued EPA in May 2009. The parties settled, and EPA agreed to a
3 public process for determining how ocean acidification should be addressed under Section
4 303(d) of the CWA, and to make such a determination by November 15, 2010. EPA
5 consequently published a Federal Register notice, accepted public comment, and determined that
6 waters impaired by ocean acidification should be identified on the list as required by Section
7 303(d).

8 33. In response to Washington's 2010 water quality assessment, Plaintiff submitted
9 comments and supporting scientific documentation to the Department of Ecology in September
10 2009 requesting the state list all ocean segments within the state's jurisdiction as threatened or
11 impaired due to ocean acidification.

12 34. Washington's 2010 draft assessment failed to include any coastal waters as
13 threatened or impaired by ocean acidification, for which Plaintiff submitted additional comments
14 and support in August 2011. In January and April 2012, Plaintiff submitted comments to EPA
15 requesting disapproval of Washington's list for its failure to include Puget Sound and other
16 coastal waters in the list of impaired waters for ocean acidification.

17 35. In June 2012 and December 2012, Plaintiff submitted additional comments and
18 data to EPA in support of a listing of Washington's coastal waters due to ocean acidification.

19 36. Despite possessing scientific data demonstrating that Washington's coastal waters
20 were not meeting or threatening to not attain state water quality standards, on December 21,
21 2012, EPA approved Washington's deficient list of impaired waters and therefore did not add
22 any ocean segments as impaired due to ocean acidification.

23 **B. Oregon's Listing Process**

24 37. In August 2007, and again in June 2009, the Center for Biological Diversity
25 submitted letters formally requesting that Oregon include ocean waters within its jurisdiction on
26 the list of impaired waters due to ocean acidification. Numerous peer-reviewed reports on ocean
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1 acidification from highly-credible scientific journal articles accompanied the letters in support of
2 the listing.

3 38. Oregon's 2010 draft list did not include any segments as impaired by ocean
4 acidification. During the public comment period, in December 2010 and again in May 2011,
5 Plaintiff submitted additional comments and supporting documents to Oregon's Department of
6 Environmental Quality requesting the identification of Oregon's coastal waters as impaired. In
7 May 2011, Oregon submitted its list of impaired waters to EPA but did not include any segments
8 as impaired by ocean acidification. In June 2011, Plaintiff submitted a letter to EPA requesting
9 that EPA partially disapprove Oregon's list for failing to address ocean acidification.

10 39. In March 2012, EPA partially approved and partially disapproved of Oregon's list
11 of impaired waters, finding the list to be incomplete. In April, June, and December 2012,
12 Plaintiff again submitted comments and references to EPA urging listings of waters impaired by
13 ocean acidification. On December 14, 2012, EPA approved Oregon's list and therefore did not
14 identify any of the state's ocean waters as impaired for ocean acidification.

15 VI. FACTUAL BACKGROUND

16 A. Ocean Acidification

17 40. When carbon dioxide is released into the atmosphere, the oceans absorb a portion
18 of those emissions. Carbon dioxide uptake by the ocean alters seawater chemistry, causing ocean
19 waters to become more acidic and the pH to decline. This process, termed "ocean acidification,"
20 represents one of the greatest threats to ocean ecosystems in the United States and throughout the
21 world.

22 41. The oceans have absorbed approximately 30 percent of the carbon dioxide
23 released into the atmosphere by human activities, contributed largely from fossil fuel use and
24 land-use changes such as deforestation. At present, the atmospheric carbon dioxide concentration
25 is nearly 400 ppm and continues to rise over 2 ppm per year. The ocean will continue to absorb
26 carbon dioxide until it reaches equilibrium with the atmosphere.

42. Globally, human sources of carbon dioxide have changed the pH of oceans an average of 0.11 units since the Industrial Revolution – a 30 percent increase in acidity. By the end of the century, the pH of the world’s oceans is predicted to drop by another 0.3 to 0.5 units, amounting to a 100 to 150 percent increase in acidity.

43. Washington and Oregon coastal waters are especially vulnerable to ocean acidification. Ocean acidification is affecting coastal waters at rates and magnitudes greater than scientists had previously estimated and has already reached levels that were not predicted until the end of the century. The entire West Coast is currently experiencing an upwelling of “corrosive acidified” waters onto the continental shelf, exposing shellfish and plankton in surface waters to corrosive conditions. Ocean acidification is already at levels that were not predicted until the end of the century. The carbon dioxide levels in the upwelled water ranges from 850 to 950 μatm (microatmospheres) near the shelf-break with higher values inshore.

44. Regional factors, such as nutrient runoff and algal blooms, may combine with high carbon dioxide waters to influence ocean acidification in the coastal waters of Oregon and Washington. Nutrient runoff and algal blooms can result from anthropogenic causes, and human sources are a major contributor to nutrient loads in the Puget Sound.

45. Ocean acidification poses a threat to marine animals and ecosystems. Our oceans are becoming more acidic faster than they have in the past 300 million years. During the closest analogous ocean acidification event, 55 million years ago, approximately 95% of marine species went extinct. Seawater chemistry is changing so rapidly that many organisms today may be unable to respond and adapt.

46. Ocean acidification impairs the ability of marine animals to build the shells and skeletons required for their survival. When carbon dioxide concentrations in seawater increase, the availability of carbonate ions decreases, making it more difficult for marine organisms to form, build, and maintain calcium carbonate shells and other calcium carbonate-based body

1 parts. As a result of ocean acidification, calcifying marine plants and animals experience greater
2 difficulty in making or maintaining their shells, slower growth rates, and higher mortality.

3 47. Ocean acidification decreases calcification in shellfish. Studies have found
4 declining calcification rates of edible mussels (*Mytilus edulis*), Pacific oysters (*Crassostrea*
5 *gigas*), Olympia oysters (*Ostreola conchaphila*), and northern abalone (*Haliotis kamtschatkana*)
6 with increases in carbon dioxide. Even moderate increases in atmospheric carbon dioxide have
7 significant negative effects on the survival and growth of sea urchins and snails, among other
8 species.

9 48. Juvenile shellfish are especially vulnerable to ocean acidification. Hatcheries in
10 both Oregon and Washington have experienced problems rearing oyster larvae due to ocean
11 acidification. Disastrous production failures at hatcheries in both states have been caused by
12 acidified waters creating conditions corrosive to shell-formation. For example, wild oysters in
13 Willapa Bay, Washington, have failed to reproduce successfully since 2005.

14 49. Scientists now predict that global warming coupled with ocean acidification will
15 destroy most of the world's coral reefs by the end of the century. The calcification rates of reef-
16 building corals are expected to decrease by 50% by the middle of the century, and studies have
17 shown that between 1990 and 2005 the calcification rates of corals in the Great Barrier Reef have
18 declined by 15 percent. Cold-water corals, like those found off the coast of Oregon and
19 Washington, are believed to be even more sensitive to ocean acidification than tropical corals
20 because they already live in conditions less favorable to calcification.

21 50. Ocean acidification also harms the planktonic organisms that form the base of the
22 marine food web. Many species of plankton are vulnerable to decreased calcification from ocean
23 acidification resulting in thin and weak shells. Most species of common plankton, including
24 pteropods, coccolithophorids, and foraminifera, have exhibited negative responses to ocean
25 acidification.

1 51. Ocean acidification has implications for the broader marine environment and food
2 web. Many calcifiers provide habitat, shelter, and/or food for various plants and animals.
3 Washington's Blue Ribbon Panel, a panel convened to review ocean acidification impacts and
4 recommend action and of which EPA was a participating member, concluded that more than 30
5 percent of Puget Sound's marine species are vulnerable to ocean acidification by virtue of their
6 dependency on the mineral calcium carbonate to make shells, skeletons, and other hard body
7 parts. For example, pteropods, a type of plankton, are the predominant prey of pink salmon, and
8 a ten percent decrease in pteropod production results in a 20 percent decline in pink salmon
9 weight.

10 52. Additionally, ocean acidification disrupts the metabolism and other biological
11 functions of marine life. Changes in the ocean's carbon dioxide concentration result in
12 accumulation of carbon dioxide in the tissues and fluids of fish and other marine animals, called
13 hypercapnia, and increased acidity in the body fluids, called acidosis. These impacts can cause a
14 variety of problems for marine animals, including difficulties with acid-base regulation,
15 calcification, growth, respiration, energy turnover, predation response, and mode of metabolism.
16 Studies have shown adverse impacts in squid and fish, among other animals.

17 53. While the biological impacts of ocean acidification are diverse, ocean
18 acidification has negative effects on survival, calcification, growth, and reproduction across a
19 broad range of marine organisms. There is a consensus among scientists that the oceans are
20 becoming more acidic due in large part to human sources of carbon dioxide and that ocean
21 acidification will fundamentally alter ocean ecosystems.

22 54. Effects of ocean acidification in marine communities and on calcification of
23 plankton, corals, and other species have already been observed in the world's oceans. These
24 impacts will worsen in time if carbon dioxide emissions continue unabated.
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1 55. While the most catastrophic impacts of ocean acidification have yet to be felt,
2 ocean acidification has arrived in the Pacific Northwest and is an imminent water quality
3 problem that requires immediate action by the EPA.

4 **B. Washington's Impaired Ocean Waters**

5 56. Washington's marine waters are protected with several water quality standards
6 that are relevant to ocean acidification. The coastal waters in Washington are mostly designated
7 as extraordinary quality for aquatic life uses. W.A.C. 173-201A-612. Such waters "[m]ust
8 support extraordinary quality salmonid and other fish migration, rearing, and spawning; clam,
9 oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish,
10 scallops, etc.) rearing and spawning." W.A.C. 173-201-210(1)(a)(i). Accordingly, Washington
11 adopted the following pH standard for marine waters of extraordinary quality:

12 pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above
13 range of less than 0.2 units.

14 W.A.C. 173-201A-210(1)(f). Additionally, waters of excellent quality must support "excellent
15 quality clam, oyster and mussel rearing and spawning." W.A.C. 173-201-210(1)(a)(ii).

16 57. To support the beneficial uses of marine waters "deleterious material
17 concentrations must be below those which have the potential, either singularly or cumulatively,
18 to adversely affect characteristic water uses, cause acute or chronic conditions to the most
19 sensitive biota dependent upon those waters." W.A.C. 173-201A-260(2)(a); W.A.C. 173-201A-
20 210(1)(b), (2)(a), (4)(a).

21 58. Ocean acidification is impacting coastal waters in Washington. Marine animals
22 are exposed to waters that are more acidic as a result of carbon dioxide pollution. Ocean waters
23 off the Washington coast exhibit acidification that exceeds the state's water quality standards,
24 including the marine pH standard that requires human-caused pH to remain with 0.2 units of
25 variation. Because the pH scale is logarithmic a small decrease is a significant change in acidity;
26 for example, a decrease of 0.2 pH is an approximate 60 percent increase in acidity.

59. Coastal waters in the Strait of Juan de Fuca experienced a decline of 0.045 pH annually between 2000-2008; resulting in a decrease of about 0.36 pH units. The declining trend continues. In that same region, tidepools experience a shift from calcifying organisms, such as mussels, to non-calcifying organisms during low-pH seawater episodes.

60. Waters containing reduced calcium carbonate, which researchers attribute in significant part to the anthropogenic contribution of carbon dioxide, are upwelling along the Washington coast. Every year since 2008, Puget Sound waters have also experienced conditions with low calcium carbonate that can be corrosive to animals. The southern Hood Canal has highly corrosive conditions with extremely low pH waters. Waters with low calcium carbonate have been linked to mass shellfish mortalities.

61. Shellfish hatcheries in Washington have experienced drastic declines in shellfish production due to ocean acidification. For example, Taylor Shellfish Hatchery on Dabob Bay, Washington, experienced persistent problems rearing oyster larvae beginning around 2005 because of ocean acidification. The hatchery relies on waters from the Bay to raise its oysters. The best available science demonstrates that ocean acidification in Washington waters threatens the rearing of shellfish.

62. In 2012, Washington convened a Blue Ribbon Panel to summarize the scientific knowledge about ocean acidification in Washington and provide recommendations for action. Washington's Department of Ecology and EPA participated in the Panel. The Panel acknowledged that low pH seawater was responsible for disastrous production failures in state oyster hatcheries. The Panel also concluded that shell growth by calcifying organisms is compromised in Washington's corrosive coastal waters.

63. Ocean acidification is preventing Washington waters from maintaining their designated use as excellent or extraordinary aquatic habitat for plankton and calcifying organisms. Lowered plankton populations, in turn, threaten the survival of salmon and other marine life.

64. The species most sensitive to increased concentrations of carbon dioxide, such as oysters, mussels, and other calcifying organisms, have shown negative impacts from acidified waters. The cumulative effect of lowered pH, fewer available carbonate ions, and acidic upwelling waters has adversely affected species both in hatcheries and in natural ecosystems.

65. Ocean acidification is causing degradation of ocean water quality in violation of Washington's antidegradation policy. Washington's antidegradation policy provides that existing and designated uses must be maintained and protected, and "[n]o degradation may be allowed that would interfere with, or become injurious to, existing or designated uses." WAC 173-201A-310. As detailed above, ocean acidification is degrading the quality of Washington's coastal waters and interfering with their designated uses.

66. Because Washington's ocean waters do not attain water quality standards, including numeric criteria, narrative criteria, designated uses, and antidegradation requirements, these ocean waters meet the requirements for inclusion on Washington's list of impaired water bodies. Each segment of Washington's coastal waters, and in particular Hood Canal, Dabob Bay, Puget Sound, the Strait of Juan de Fuca, and Willapa Bay, should be listed as threatened or impaired for failing to achieve one or more of Washington's water quality standards. EPA's approval of Washington's deficient 303(d) list of impaired waters was arbitrary and capricious and a violation of the law. 5 U.S.C. § 706; 33 U.S.C. § 1313(d).

C. Oregon's Impaired Ocean Waters

67. Oregon has set several water quality standards applicable to ocean acidification. For example, Oregon's coastal waters for all basins must be protected for beneficial uses that include fish and aquatic life, wildlife and hunting, and fishing uses. OAR 340-041-0220, 0230, 0300 Tables 220A, 230A, and 300A. Oregon's biological criteria require that "waters of the state must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities." OAR 340-041-0011. The water quality standards also protect against "other conditions that are deleterious to fish or other aquatic life." OAR 340-041-0007.

1 Further, “waters will be free from dissolved gasses, such as carbon dioxide..., in sufficient
2 quantities ... to be deleterious to fish or other aquatic life, navigation, recreation, or other
3 reasonable uses made of such water.” OAR 340-041-0031.

4 68. Ocean acidification is impacting coastal waters in Oregon and causing
5 “deleterious” and “detrimental” impacts to shellfish and other marine life, in violation of
6 Oregon’s water quality standards. *Id.* Coastal nearshore waters and estuaries, which are home to
7 economically and ecologically important species such as mussels, oysters, and scallops, are
8 experiencing elevated acidity that is impacting the ability of shellfish to calcify and build the
9 shells they need to survive.

10 69. Oregon oyster hatcheries have experienced mass larvae mortality in recent years
11 due to ocean acidification. The Pacific Northwest’s largest oyster seed producer, Whiskey Creek
12 Hatchery is located on Netarts Bay, Oregon. It uses seawater directly from the Bay to raise its
13 oyster larvae. In 2006, the hatchery experienced a severe collapse in its oyster production. The
14 problems with the oyster larvae were linked to the conditions of ambient seawater that was
15 affected by ocean acidification with low levels of calcium carbonate.

16 70. Oregon’s coast and coastal waters are clearly affected by ocean acidification. A
17 survey of waters off the Oregon coast documented the upwelling of waters undersaturated with
18 calcium carbonate. Carbon dioxide pollution is ubiquitous, and therefore ocean acidification
19 broadly affects large geographic areas. Accordingly, Oregon’s fish and other aquatic life are
20 being exposed to corrosive conditions in coastal surface waters. In turn, this water quality
21 problem has negative ecological consequences for benthic and pelagic calcifying organisms such
22 as mussels, oysters, abalone, echinoderms, and pteropods.

23 71. The contribution of anthropogenic carbon dioxide has caused ocean acidification
24 to rise above natural background levels in Oregon’s coastal waters.

25 72. The best available science demonstrates that ocean acidification in Oregon
26 threatens the rearing of shellfish, especially oysters and mussels. Ocean acidification also
27

1 threatens plankton that salmon and other marine life depend upon for foraging. Furthermore,
2 increasingly acidic waters threaten to become unsuitable habitat for many marine species.

3 73. Shellfish aquaculture, combined with recreational and commercial wild fisheries,
4 contributes hundreds of millions of dollars to Oregon and Washington's economies. Coastal
5 economies depend upon the harvest of species that are negatively affected by ocean acidification.
6 Ocean acidification's impacts on shellfish could result in economic losses ranging from \$1.5 to
7 \$6.4 billion though mid-century.

8 74. Ocean acidification is also causing degradation of ocean water quality in violation
9 of Oregon's antidegradation policy, which aims to maintain and enhance existing water quality,
10 and "ensure the full protection of all existing beneficial uses." OAR 340-041-0004.

11 75. Oregon's ocean waters do not attain water quality standards, including narrative
12 criteria, biological criteria, dissolved gas standards, and antidegradation requirements.
13 Accordingly, the State of Oregon was required to list each segment of Oregon's coastal waters,
14 and in particular Netarts Bay, as threatened or impaired for failing to achieve one or more of
15 Oregon's water quality standards.

16 76. EPA's approval of Oregon's deficient 303(d) list of impaired waters was arbitrary
17 and capricious and a violation of the law. 5 U.S.C. § 706; 33 U.S.C. § 1313(d).

18 **VII. CLAIMS FOR RELIEF**

19 (Violations of the Clean Water Act and Administrative Procedure Act)

20 77. Plaintiff realleges and incorporates by reference all the allegations set forth in this
21 Complaint.

22 78. EPA's approval of Washington's impaired waters list that failed to include all
23 ocean segments that do not meet and/or are not expected to meet Washington's water quality
24 standards due to by ocean acidification violates the Clean Water Act Section 303(d), 33 U.S.C. §
25 1313(d), and is arbitrary, capricious, and otherwise not in accordance with law in violation of the
26 Administrative Procedure Act, 5 U.S.C. § 706. EPA's subsequent failure to identify any
27

1 Washington ocean waters that do not attain water quality standards for pH and other criteria due
2 to ocean acidification violates Clean Water Act Section 303(d), 33 U.S.C. § 1313(d), and
3 constitutes a failure to act in violation of the Administrative Procedure Act, 5 U.S.C. § 706.

4 79. EPA's approval of Oregon's impaired waters list that failed to include all ocean
5 segments that do not meet and/or are not expected to meet Oregon's water quality standards due
6 to ocean acidification violates the Clean Water Act Section 303(d), 33 U.S.C. § 1313(d), and is
7 arbitrary, capricious, and not in accordance with law in violation of the Administrative Procedure
8 Act, 5 U.S.C. § 706. EPA's subsequent failure to identify any Oregon ocean waters that do not
9 attain water quality standards due to ocean acidification violates Clean Water Act Section
10 303(d), 33 U.S.C. § 1313(d), and constitutes a failure to act in violation of the Administrative
11 Procedure Act, 5 U.S.C. § 706.

12 **VIII. PRAYER FOR RELIEF**

13 For the reasons listed above, Plaintiff respectfully requests that the Court grant the
14 following relief.

15 1. A declaration that EPA violated its duties under the Clean Water Act and acted in
16 a manner that is arbitrary, capricious, or otherwise not in accordance with law when it unlawfully
17 approved Oregon and Washington's deficient lists of impaired water bodies under Section 303(d)
18 of the Clean Water Act;

19 2. An order compelling the EPA to disapprove Oregon and Washington's lists of
20 impaired water bodies and identify waters impaired by ocean acidification within 30 days of the
21 disapproval, as required by Section 303(d) of the Clean Water Act or, in the alternative, vacate
22 and remand the approvals to EPA for a new determination that complies with the requirements of
23 the Clean Water Act by a date certain; and

24 3. Award Plaintiff its costs of litigation, including reasonable attorneys' fees
25 pursuant to the Equal Access to Justice Act; and

26 4. Grant Plaintiff such other relief as the Court deems just and proper.
27

DATE: October 16, 2013

Respectfully submitted,

s/ Sarah Uhlemann

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